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Parental Monitoring and Youth's Binge Behaviors: The role of Sensation Seeking and Life
Satisfaction

Abstract

Framed within an ecological perspective of the onset of adolescent problem behaviors, the current study explored the joint role of parent-adolescents' relationships and youth's individual factors in binge eating and drinking. Firstly, in line with pieces of research highlighting the beneficial impact of effective parenting on youth development, the present paper sought to enhance the knowledge about the positive influence of parental monitoring on youth's binge drinking and eating. Moreover, since literature evidenced that the explanatory mechanisms of the association between parental monitoring and binge behaviors are not fully explored, the study focused on the potential intervening role of sensation seeking and life satisfaction as mediators. The study design was cross-sectional and self-report questionnaires were administered among a population of 944 high school students ($M = 16.35$, $SD = 1.31$) living in Palermo (Italy). Path analysis showed that parental monitoring was directly and negatively related to both binge eating and binge drinking. Moreover, sensation seeking negatively mediated the relationships between parental monitoring and both binge behaviors, whereas life satisfaction only mediated between parental monitoring and binge eating. The current study provided data useful to understand the complex interrelations between intrapersonal (life satisfaction and personality trait, i.e., sensation seeking) and contextual factors (parent-child relationships) that may discourage or cause eating and alcohol use disorders among youth. Finally, implications for parents and practitioners working with youngsters were discussed.

Key words: binge eating, binge drinking, life satisfaction, adolescence, sensation seeking

Parental Monitoring and Youth's Binge Behaviors: The role of Sensation Seeking and Life Satisfaction

The term binge defines a period of uncontrolled or excessive indulgence and is most commonly used to describe acts of excessive or compulsive consumption of either food or alcohol (Ferriter & Ray, 2011). In detail, binge eating refers to eating a larger amount of food than normal within a short period of time with no sense of control over one's eating (American Psychiatric Association, 2013); binge drinking, instead, refers to consuming consecutive alcoholic beverages in a limited period of time (Courtney & Polich, 2009; Kuntsche, Sznitman, & Kuntsche, 2017).

These patterns of consumption are common among teens who go through several biological, psychological and social changes that may lead them to irrational, reckless and "emotionally influenced behaviors" (Dahl, 2004, p. 3) resulting in acute consequences for their physical and psychological health (Laghi, Baiocco, Liga, Lonigro, & Baumgartner, 2014; Stickley et al., 2015). Moreover, binge eating and binge drinking often co-occur suggesting that there are some overlapping features between these behaviors (Ferriter & Ray, 2011; Laghi et al., 2014). Hence, understanding mechanisms underlying adolescents' binge behaviors could be helpful to design supportive intervention programs in favor of youth (Kenny, Singleton, & Carter, 2017).

In the attempt to identify some of these mechanisms, and in line with an ecological perspective of human development, in the current paper binge behaviors were considered as the result of the interaction between individual and contextual factors (Bronfenbrenner, 2005; Ennett et al., 2008). In particular, the study focused on the joint role that parental monitoring (contextual factor), life satisfaction and sensation seeking (intrapersonal factors) play in preventing or causing binge eating and drinking among adolescents.

Several scholars have reported that parent-child relationships are deeply implicated in the onset of problem behaviors during adolescence and they have also highlighted the beneficial influence of effective parenting on youth's well-being (Criss et al., 2015; Laird, Pettit, Bates, & Dodge, 2003; Tilton-Weaver, Burk, Kerr, & Stattin, 2013). In particular, parental behavioral control

or monitoring, defined as a set of parenting behaviors aimed at paying attention to and tracking of the adolescent's whereabouts, activities, adaptations, and friendships (Bean, Barber, & Krane, 2006; Dishion & McMahon, 1998), can be considered as one of the most important protective factors against adolescent problem behaviors (Hoskins, 2014; Kim & Neff, 2010; Lionetti et al., 2018).

In detail, research has shown that parental monitoring is negatively associated with cigarette smoking (Chuang, Ennett, Bauman, & Foshee, 2005), drug use (Shillington et al., 2005), gambling and delinquency (Vitaro, Brendgen, Ladouceur, & Tremblay, 2001), vandalism (Miller & Plant, 2003), as well as alcohol use (Arata, Stafford, & Tims, 2003; Capaldi, Stoolmiller, Kim, & Yoerger, 2009; Latendresse et al., 2008) and eating disorders (Berge et al., 2014; Krug et al., 2016; Zubatsky, Berge, & Neumark-Sztainer, 2015). Furthermore, scholars seem to agree in arguing that parental monitoring lessens the likelihood of binge drinking (Donaldson, Handren, & Crano, 2016; Kelly, Becker, & Spirito, 2017) and binge eating behaviors among youth (Martinson, Esposito-Smythers, & Blalock, 2016). However, existing literature mostly focused on parental monitoring as a mediating variable rather than exploring its direct effects on problem behaviors (e. g., alcohol use; Kim & Neff, 2010). For instance, Barnes, Reifman, Farrell, and Dintcheff (2000) in their six-waves longitudinal analyses provided evidence that monitoring mediated the linkage between parental support and alcohol misuse. In the attempt to fill this gap, the current study investigated such a specific dimension of parenting, i. e. parental monitoring (Kuppens & Ceulemans, 2019) in order to enhance the knowledge about the beneficial impact of parents' active supervision on adolescents' positive outcomes, in terms of healthy use of either food or alcohol. As to this, it is reasonable to suppose that parents who do not adequately monitor their offspring are less involved in their lives and, consequently, may neglect the first signs of problematic behaviors (i.e., binge drinking or eating) of youngsters. In this way, they are not able to intervene and correct inappropriate behaviors.

Nevertheless, the association between parental monitoring and adolescents' binge behaviors is not only direct but may also be mediated by some social and cognitive variables, such as peer

influence (Kim & Neff, 2010), expected social benefits (e.g., for alcohol use, being cool or more grown-up; Yu et al., 2016), and psychological distress (Blodgett Salafia, Gondoli, Corning, McEnery, & Grundy, 2007). An important task for researchers is to identify such intervening variables because knowing them may serve to better understand the linkages between parenting and children's adjustment, as well as to design effective prevention programs. Several studies have already stressed the mediating role of peer influence and have shown that the transmission of parental values and standards to adolescents may protect them from the influence of antisocial peers and friends who misuse alcohol (Kim & Neff, 2010). Instead, little is known about the role of intrapersonal factors, such as sensation seeking and life satisfaction, that are likely to mediate the relationships between monitoring and binge behaviors. Indeed, it has been reported that, on the one hand, both variables are associated with parental monitoring (Calmeiro, Camacho, & De Matos, 2018; Kaynak et al., 2013) and, on the other hand, they are related to high frequency of either binge drinking and eating (Doumas, Miller, & Esp, 2017; Laghi, Pompili, Baumgartner, & Baiocco, 2015). In order to fill this gap, the current study sought to explore the intervening role of these two dimensions in the linkage between parental monitoring and binge drinking and eating. In doing so, it was adopted the perspective of ecological human development (Bronfenbrenner, 2005) assuming that the onset of risky behaviors may be the result of contextual and individual factors. Briefly, the paper tested whether contextual factor, in terms of parental control, and intrapersonal factors, in terms of sensations seeking and satisfaction with life, jointly work to promote or discourage binge behaviors.

Sensation seeking can be defined as “a need for varied, novel and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experience” (Zuckerman, 1979, p. 10). This construct is considered as a strong predictor of alcohol use and binge drinking (Doumas et al., 2017; Sargent, Tanski, Stoolmiller, & Hanewinkel, 2010) and, to a certain extent, as a risk factor for binge eating among youth (Laghi et al., 2015). Indeed, sensation seekers may adopt binge behaviors to escape boredom and negative feeling about the self, to

experience some state of pleasure, to seek stimulation or to reduce anxiety levels (Doumas et al., 2017; Fischer & Smith, 2008; Laghi et al., 2015). Moreover, it seems possible to suppose that parental monitoring may be negatively associated with sensation seeking (Kaynak et al., 2013). For instance, Stephenson and Helme (2006) suggested that parents who are high in monitoring might be able to reduce the risky behaviors (e.g., substance or alcohol use) of their high sensation-seeking children by closely surveilling them and by motivating them to get involved in healthy stimulating activities. However, the relationship between monitoring and sensation seeking is an under-studied topic that warrants more exploration also with regard to its consequences on binge behaviors.

Life satisfaction is an overall cognitive evaluation by the individual of his or her life, based on persons' comparisons between self-imposed criteria and their perceived life circumstances (Diener, Scollon, & Lucas, 2003). Such appraisals are negatively associated with alcohol use and binge drinking (Lew, Xian, Qian, & Vaughn, 2018; Zullig, Valois, Huebner, Oeltmann, & Drane, 2001), as well as with disordered eating behaviors and binge eating among adolescents (Esch & Zullig 2008; Matthews, Zullig, Ward, Horn, & Huebner, 2012; Valois, Zullig, Huebner, & Drane, 2003; Zullig, Pun, & Huebner, 2007). According to some authors, it appears reasonable to posit that adolescents who are dissatisfied with their lives exert less self-care and engage in unhealthy behaviors, like those linked to alcohol consumption and disordered eating (Grant, Wardle, & Steptoe, 2009; Phillips-Howard et al., 2010; Proctor, Linley, & Maltby, 2009). In this way, both binge drinking and binge eating may represent attempts to escape or regulate unpleasant emotions related to a low life satisfaction.

Additionally, effective parenting including an appropriate amount of monitoring is positively associated with adolescents' life satisfaction (Calmeiro et al., 2018; Di Maggio & Zappulla, 2014; Milevsky, Schlechter, Netter, & Keehn, 2007; Piko & Hamvai, 2010). Similarly, youth reporting family cohesion and parental support have been found to show high levels of global life satisfaction (Raboteg-Šarić, Brajša-Žganec, & Šakić, 2008). Also, several lines of research have pointed out the beneficial effects of family environments promoting communication, warmth, and

monitoring, on general life satisfaction and psychological adjustment among adolescents (Hoskins, 2014; Proctor et al., 2009). In light of these evidences, it is possible to suppose that life satisfaction may mediate the relationships between parental monitoring and binge behaviors. Put differently, it could be assumed that adolescents growing up in supportive families (e.g., families sharing the reasons behind the rules and promoting communication) are not likely to exhibit binge behaviors given that the positive parent-children relationships may promote the quality of life among youth.

When examining all these above mentioned relationships, it should be considered that males are generally more prone to binge drinking than females (Kelley-Weeder, 2011) who, instead, are more vulnerable to eating disorders (Gan, Mohamad, & Law, 2018; Lee-Win, Reinblatt, Mojtabei, & Mendelson, 2016); also, it should be noticed that males are more satisfied with their lives than girls (Goldbeck, Schmitz, Besier, Herschbach, & Henrich, 2007). In addition, it has been pointed out that males seem to be more willing to engage in exciting activities (i.e. sensation seeking) than females (Cross, Cyrenne, & Brown, 2013). Finally, the parent-youth relationship is also conditioned by gender with girls being more monitored than males (Seedall & Anthony, 2015). As to age, literature suggests that in the transitioning to emerging adulthood individuals are less controlled by parents (e.g., when they move to college, they are not exposed to parental monitoring) and, as a consequence, they may be more often involved in high-risk binge behaviors (e.g., excessive drinking; Krieger, Young, Anthenien, & Neighbors, 2018). With regard to satisfaction with life and sensation seeking, some evidence underlined that both seem to decrease as age increases (Goldbeck et al., 2007; Feij & Taris, 2010) with some consequences on the way youth use alcohol and food in their lives. In line with this body of research, the role of gender and age was taken into consideration in all the above introduced associations.

The current study

The present work sought to contribute to a better understanding of the relationships between parental monitoring and binge behaviors (binge eating and binge drinking) among youth. It was also explored the mediation role of life satisfaction and sensation seeking in this association. Hence, the

linkages of these variables were tested within a comprehensive model, which constitutes the main novelty of this research study. Particularly, given the earlier discussion, it was hypothesized that:

H1: Parental monitoring would be negatively and directly associated with sensation seeking.

H2: Parental monitoring would be positively and directly associated with life satisfaction.

H3: Parental monitoring would be negatively and directly associated with binge eating and with binge drinking.

H4: Sensation seeking would be positively and directly associated with binge eating and with binge drinking.

H5: Life satisfaction would be negatively associated with binge eating and with binge drinking.

H6: Sensation seeking and life satisfaction would mediate the relationships between parental monitoring, binge eating and binge drinking, with the indirect paths being negative through both mediators.

Finally, gender and age were specified as control variables in the analyzed model due to gender and age-related differences showed by literature (Cross et al., 2013; Feij & Taris, 2010; Gan et al., 2018; Goldbeck et al., 2007; Kelley-Weeder, 2011; Krieger et al., 2018; Seedall & Anthony, 2015).

Method

Participants and procedure

944 high school students (43% Male = 409; 57% Female = 535), with an age range between 14 and 21 ($M = 16.35$; $SD = 1.31$) took part in the research. As already evidenced in the introduction, we chose to investigate youth because they are more vulnerable to risky behaviors (Dahl, 2004), such as binge eating and drinking. The majority of the participants ($n = 882$; 93%) came from families with their parents married, 35 participants (4%) had their parents divorced or separated, 14 participants (2%) had their parents cohabiting but not married, and 13 participants (1%) lived with only one parent. All participants completed the survey administered during one

classroom period, which took approximately 20 minutes. Participants answered a set of self-report questionnaires which were chosen in the literature because they have been already validated and are frequently used to assess the study variables.

No compensation was provided for participants and, in accordance with the Declaration of Helsinki ethical standards, responses to the questionnaires were confidential and anonymous. After the permission of the schools, students were provided with the research information sheet and with the consent form; only students under the age of 18 that took back the consent form signed by their parents, and students of 18 or over that signed the consent form, were involved in the study.

Measure

Parental Monitoring. Parental monitoring was measured using the five-item parental monitoring scale (Stattin & Kerr, 2000). Participants reported on how much they think their parents know about their activities items (e.g., “Do your parents know where you are most afternoons after school?”) in a three point rating scale ranging from 1 (almost never) to 3 (very often). The questionnaire does not differentiate by mother/father and provide a composite score of paternal and maternal Behavioral Control. Several studies (Bean et al., 2006) have widely used this measure and, in this study, the scale had acceptable internal reliabilities ($\alpha = .74$).

Sensation Seeking. The Brief Sensation Seeking Scale (BSSS; Hoyle, Stephenson, Palmgreen, Lorch, & Donohew, 2002) consists of eight Likert-type items rated on a 5-point scale (from strongly disagree to strongly agree), yielding a maximum score of 40 (sample item: “I prefer friends who are excitingly unpredictable”). The BSSS has high levels of reliability and validity and assesses all four domains represented in the original Zuckerman Sensation-Seeking Scale-V (SSS-V; Zuckerman, Eysenck & Eysenck, 1978): the experience seeking (items 1 and 5), adventure and emotion seeking (2 and 6), disinhibition (3 and 7), and susceptibility to boredom (4 and 8). The internal consistency for the total score in previous studies with adolescents was around 0.75 (Banerjee, Greene & Yanovitzky, 2011; Hoyle et al., 2002; Primi, Narducci, Benedetti, Donati, & Chiesi, 2011). In the present study the scale had acceptable internal reliabilities ($\alpha = .76$).

Life Satisfaction. Life satisfaction was measured with a 5-item scale which assessed the overall degree of adolescents' satisfaction with their lives (Diener, Emmons, Larsen, & Griffin, 1985). A sample item is: "I am satisfied with my life". The items were presented as declarative statements and participants were asked to indicate on a 5-point scale (from 1 = very untrue to 5 = very true) the extent to which each statement was true for them. In the present study the scale had acceptable internal reliabilities ($\alpha = .83$).

Binge Eating. It was measured with the Binge Eating scale (BES; Gormally, Black, Daston, & Rardin, 1982) and consists of 16 groups of sentences (a sample sentence is "I feel incapable of controlling urges to eat. I have a fear of not being able to stop eating voluntarily") that were assigned weights in a 4 point Likert scale from 0 to 3. Several studies (Celio, Wilfley, Crow, Mitchell, & Walsh, 2004; Gormally, et al., 1982) have shown that the BES has good psychometrics characteristics and, in this study, the scale had acceptable internal reliabilities ($\alpha = .83$).

Binge Drinking. Binge Drinking was assessed with the AUDIT-3 (Bush, Kivlahan, McDonell, Fihn, & Bradley, 1998; Cortés-Tomás, Giménez-Costa, Motos-Sellés, & Sancerni-Beitia, 2016), that is a single item measure (i.e., "How often did you have 6 or more drinks on one occasion in the past year?") from the third question of the AUDIT test for Alcohol consumption and it measures the typical and detailed binge-drinking characteristics during the previous month. Single item measures are widely used for Binge Drinking frequency (Luquiens, Falissard, & Aubin, 2016; Patrick & Schulenberg, 2011) because they provide the typical and detailed binge-drinking characteristics and correspond to the definition of at least 4/5 drinks (female/male) consumed in one single occasion on a five point Likert-type rating scale ranging from 0 (never) to 4 (almost daily).

Data Analysis

In the hypothesized model sensation seeking was predicted by monitoring, while binge eating and binge drinking were predicted by life satisfaction, sensation seeking and monitoring. Furthermore, life satisfaction and sensation seeking were correlated with each other, as well as binge eating and binge drinking. Finally, all the study variables (monitoring, sensation seeking,

binge eating, and binge drinking) were predicted by age and gender to control for the effect of the background variables, but gender and age were not allowed to correlate. To test the hypothesized model, a path analysis with maximum likelihood estimation and 5000 resample of bootstrapped estimates was used. Bootstrapping approach (Preacher & Hayes, 2008; Shrout & Bolger, 2002; Wu & Jia, 2013) was used to examine the mediation role of sensation seeking and life satisfaction in the association between parental monitoring and binge drinking and binge eating. Following the guidelines for this approach (Preacher & Hayes, 2008; Shrout & Bolger, 2002; Wu & Jia, 2013) the 95% bias-corrected confidence intervals for the total, direct, and indirect effects were estimated. A mediation effect is reached when for the indirect effect the zero is not included between the upper and lower bound of the 95% bias-corrected confidence interval. Bootstrap resampling method is a nonparametric process that is not subject to any assumption regarding the distribution, and it is also a widely used approach to address nonnormality in SEM (Nevitt & Hancock, 2001).

Results

Mean, standard deviations, skewness, kurtosis, and correlations for all the study variables are displayed in Table 1. Generally, participants were characterized by high levels of parental monitoring, high enough scores on sensation seeking, average levels of life satisfaction, and low levels of both binge behaviors. Similarly to other studies (e.g., Fischer, & Smith, 2008; Lo, Weber, & Cheng, 2013; Martin, Bruce, & Fisher, 2012), binge eating and binge drinking were positively skewed suggesting that students tend to have low scores on these variables, while parental monitoring was negatively skewed indicating the tendency to report high score. The bootstrapping approach was used in the subsequent analysis to manage nonnormality of data. Correlations showed that monitoring was positively related to life satisfaction, while it was negatively related to sensation seeking, binge eating, and binge drinking. Life satisfaction was negatively related to sensation seeking, binge eating, and binge drinking. Sensation seeking, binge eating, and binge drinking were positively related to each other. As preliminary analysis to determine whether there were multivariate associations between the background variables (age and gender) and all the study

variables included in the hypothesized model (monitoring, life satisfaction, sensation seeking, binge eating, and binge drinking), a multivariate analysis of covariance (MANCOVA) was conducted. In the MANCOVA, gender (categorical background variables) was included as a fixed factor, while age (continuous background variables) as covariate, and with all study variables as dependent variables (monitoring, life satisfaction, sensation seeking, binge eating, and binge drinking). Results showed that there were overall multivariate effects for all background variables: age, Wilks's $\lambda = 0.97$, $F(5,937) = 5.53$, $p < .01$, $np^2 = .03$; gender, Wilks's $\lambda = 0.92$, $F(5,937) = 16.89$, $p < .01$, $np^2 = .08$. Subsequent, univariate ANOVAs indicated significant effects of gender on monitoring, life satisfaction, binge eating, and binge drinking: particularly, male reported higher level than female of life satisfaction, $F(1,941) = 31.60$, $p < .01$, $np^2 = .03$, and binge drinking, $F(1,941) = 13.83$, $p < .01$, $np^2 = .01$, and female reported higher level than male of monitoring, $F(1,941) = 17.16$, $p < .01$, $np^2 = .02$, and binge eating, $F(1,941) = 15.31$, $p < .01$, $np^2 = .02$. Finally, there were not gender differences for the sensation seeking, $F(1,941) = 0.51$, $p = .48$, $np^2 < .01$. Considering the significance effects of age and gender on the study variables, their effects were controlled in the model, in order to have a more possible conservative analyses.

Table 1 - Descriptive and Correlational analyses

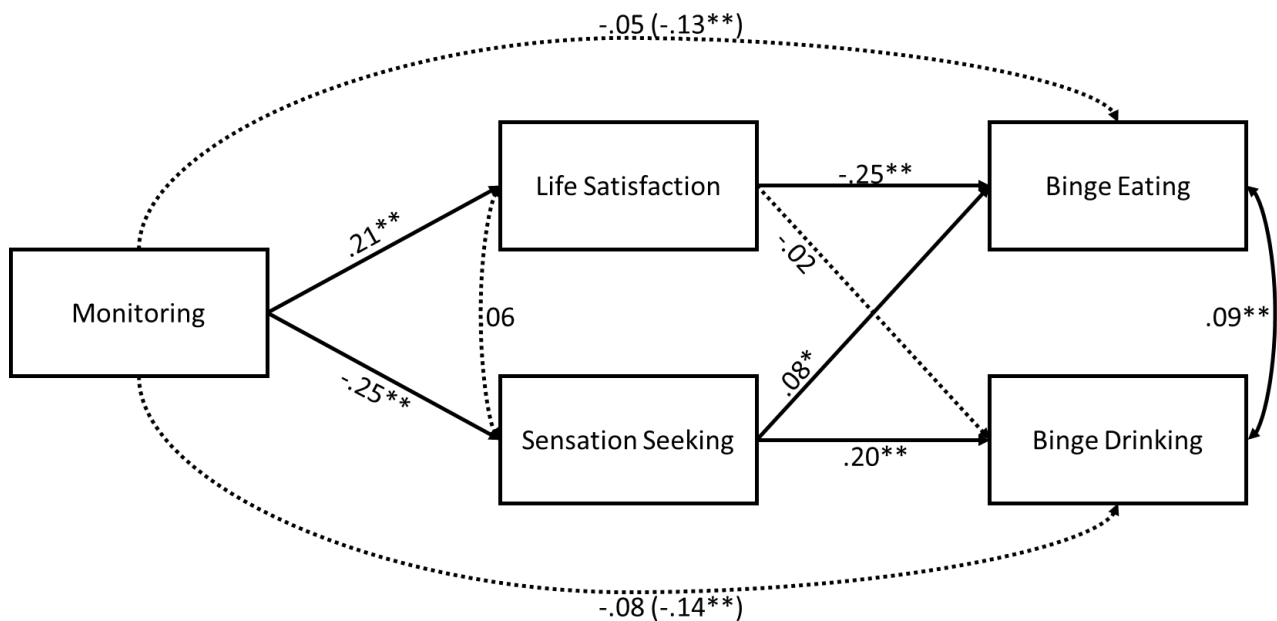
| | Min | Max | M | SD | Skew | Kurt | 1 | 2 | 3 | 4 | 5 |
|----------------------|------|------|------|-----|-------|------|--------|--------|-------|-------|---|
| 1. Monitoring | 1.00 | 3.00 | 2.64 | .39 | -1.48 | 2.43 | | | | | |
| 2. Life Satisfaction | 1.00 | 4.00 | 2.71 | .67 | -.25 | -.38 | .19** | | | | |
| 3. Sensation Seeking | 1.13 | 5.00 | 3.29 | .78 | -.15 | -.30 | -.25** | -.01 | | | |
| 4. Binge Eating | .00 | 2.88 | .48 | .42 | 1.22 | 1.65 | -.11** | -.28** | .09** | | |
| 5. Binge Drinking | .00 | 4.00 | .44 | .86 | 2.49 | 6.48 | -.15** | -.03 | .23** | .11** | - |

| | | | | | | | | | | | |
|--------|----|----|-------|------|------|------|------|--------|-------|-------|-------|
| 6. Age | 14 | 21 | 16.35 | 1.31 | -.21 | -.40 | -.06 | -.14** | .08** | .09** | .08** |
|--------|----|----|-------|------|------|------|------|--------|-------|-------|-------|

Note: n = 944; ** p < .01

Results from path analyses showed that the hypothesized model (Figure 1) had excellent fit to the data $\chi^2(1) = 4.08$; $p = .04$, CFI = .99, RMSEA = .06 (90% CI = .01, .12), SRMR = .01, and that the following direct effects were significant (table 2): monitoring was negatively predicted by age ($b = -0.02$, 95% CIs [-0.04; -0.01], $\beta = -.07$, $p < .05$) and positively by gender ($b = 0.10$, 95% CIs [0.05; 0.15], $\beta = .13$, $p < .01$); sensation seeking was negatively predicted by monitoring ($b = -0.50$, 95% CIs [-0.64; -0.38], $\beta = -.25$, $p < .01$) and positively by age ($b = 0.04$, 95% CIs [0.01; 0.08], $\beta = .07$, $p < .05$); life satisfaction was positively predicted by monitoring ($b = 0.37$, 95% CIs [0.25; 0.49], $\beta = .21$, $p < .01$), negatively predicted by age ($b = -0.06$, 95% CIs [-0.09; -0.02], $\beta = -.11$, $p < .01$) and negatively predicted by gender ($b = -0.28$, 95% CIs [-0.36; -0.20], $\beta = -.21$, $p < .01$); binge eating was negatively predicted by life satisfaction ($b = -.15$, 95% CIs [-.20; -.11], $\beta = -.25$, $p < .01$), positively predicted by sensation seeking ($b = .04$, 95% CIs [0.01; 0.08], $\beta = .08$, $p < .05$) and positively predicted by gender ($b = 0.08$, 95% CIs [0.02; 0.13], $\beta = .09$, $p < .01$); binge drinking was positively predicted by sensation seeking ($b = 0.22$, 95% CIs [0.15; 0.29], $\beta = .20$, $p < .01$), positively predicted by age ($b = 0.04$, 95% CIs [0.01; 0.08], $\beta = .07$, $p < .05$), and negatively predicted by gender ($b = -0.19$, 95% CIs [-0.31; -0.08], $\beta = -.11$, $p < .01$). The other direct effects were not significant (table 2): from gender to sensation seeking ($b = .02$, 95% CIs [-0.08; 0.12], $\beta = .01$, $p > .05$); from monitoring to binge eating ($b = -.06$, 95% CIs [-0.13; 0.02], $\beta = -.06$, $p > .05$); from age to binge eating ($b = .01$, 95% CIs [-0.01; 0.03], $\beta = .04$, $p > .05$); from monitoring to binge drinking ($b = -.18$, 95% CIs [-0.38; 0.01], $\beta = -.08$, $p > .05$); from life satisfaction to binge drinking ($b = -.03$, 95% CIs [-0.12; 0.06], $\beta = -.02$, $p > .05$);

Figure 1 - Structural Model



Note: Path are standardized effects; Direct Paths are reported; Total Effect is reported in brackets; Path from background variables (age and gender) are not displayed for clarity purpose; Dotted line represent non significance paths; $**p < .01$; $*p < .05$;

Examination of the total effects (table 2) showed that both the total effects from monitoring to binge eating ($b = -0.14$, 95% CIs $[-0.21; -0.07]$, $\beta = -.13$, $p < .01$), and from monitoring to binge drinking ($b = -0.30$, 95% CIs $[-0.49; -0.13]$, $\beta = -.14$, $p < .01$), were significant and had a negative relation. Examining all the specific indirect effects (table 2) it was possible to observe a significant negative indirect effects from monitoring to binge eating, via life satisfaction ($b = -0.06$, 95% CIs $[-0.08; -0.04]$, $\beta = -.05$, $p < .01$), and via sensation seeking ($b = -0.02$, 95% CIs $[-0.04; -0.01]$, $\beta = -.02$, $p < .05$), and from monitoring to binge drinking via sensation seeking ($b = -0.11$, 95% CIs $[-0.16; -0.07]$, $\beta = -.05$, $p < .01$). The indirect effect from monitoring to binge drinking via life satisfaction ($b = -0.11$, 95% CIs $[-0.05; 0.02]$, $\beta = -.01$, $p > .05$), was not significant, instead.

Table 2 – Total, direct, and indirect effects

| | b | P | CI [lower; Upper] | β |
|------------------------------------|----------|----------|--------------------------|----------|
| <i>DIRECT EFFECTS</i> | | | | |
| Age → Monitoring | -0.02 | 0.03 | [-0.04; 0.00] | -0.07 |
| Gender → Monitoring | 0.10 | < 0.01 | [0.05; 0.15] | 0.13 |
| Monitoring → Sensation Seeking | -0.50 | < 0.01 | [-0.63; -0.38] | -0.25 |
| Age → Sensation Seeking | 0.04 | 0.04 | [0.00; 0.08] | 0.07 |
| Gender → Sensation Seeking | 0.02 | 0.75 | [-0.08; 0.12] | 0.01 |
| Monitoring → Life Satisfaction | 0.37 | < 0.01 | [0.25; 0.49] | 0.21 |
| Age → Life Satisfaction | -0.06 | < 0.01 | [-0.09; -0.02] | -0.11 |
| Gender → Life Satisfaction | -0.28 | < 0.01 | [-0.36; -0.19] | -0.21 |
| Monitoring → Binge Eating | -0.06 | 0.13 | [-0.13; 0.02] | -0.05 |
| Life Satisfaction → Binge Eating | -0.15 | < 0.01 | [-0.20; -0.11] | -0.25 |
| Sensation Seeking → Binge Eating | 0.04 | 0.02 | [0.01; 0.07] | 0.08 |
| Age → Binge Eating | 0.01 | 0.24 | [-0.01; 0.03] | 0.04 |
| Gender → Binge Eating | 0.08 | < 0.01 | [0.02; 0.13] | 0.09 |
| Monitoring → Binge Drinking | -0.18 | 0.07 | [-0.38; 0.01] | -0.08 |
| Life Satisfaction → Binge Drinking | -0.03 | 0.49 | [-0.12; 0.06] | -0.02 |
| Sensation Seeking → Binge Drinking | 0.22 | < 0.01 | [0.15; 0.29] | 0.20 |
| Age → Binge Drinking | 0.04 | 0.02 | [0.01; 0.08] | 0.07 |
| Gender → Binge Drinking | -0.19 | < 0.01 | [-0.31; -0.07] | -0.11 |

INDIRECT EFFECTS

| | | | | |
|---|-------|--------|-----------------|-------|
| Monitoring → Life Satisfaction → Binge Eating | -0.06 | < 0.01 | [-0.08; -0.04] | -0.05 |
| Monitoring → Sensation Seeking → Binge Eating | -0.02 | 0.03 | [-0.04; -0.01] | -0.02 |
| Monitoring → Life Satisfaction → Binge Drinking | -0.01 | 0.50 | [-0.05; 0.02] | -0.01 |
| Monitoring → Sensation Seeking → Binge Drinking | -0.11 | < 0.01 | [-0.16; -0.07] | -0.05 |

TOTAL EFFECTS

| | | | | |
|-----------------------------|-------|--------|-----------------|-------|
| Monitoring → Binge Eating | -0.14 | < 0.01 | [-0.21; -0.07] | -0.13 |
| Monitoring → Binge Drinking | -0.30 | < 0.01 | [-0.49; -0.13] | -0.14 |

Discussion

Binge eating and binge drinking are increasing, often co-occurring phenomena, that negatively impact the life of youth (Kane, Loxton, Staiger, & Dawe, 2004). Based on an ecological perspective of human development (Bronfenbrenner, 2005), the current research assumed that the onset of binge behaviors results from the interaction of individual and environmental factors. Consequently, not only did it examine the direct relationships between parental monitoring (contextual factor) and compulsive, excessive eating and drinking, but it also explored the mediating role of intrapersonal factors (i.e., general life satisfaction and sensation seeking) in these associations.

Although the sample of the study did not report high rates of binge drinking and eating, findings shed light on some of the social and psychological processes underlying youth's binge behaviors. In detail, H1 and H2 were fully confirmed since direct paths from parental monitoring to sensation seeking and to life satisfaction were found. In particular, results showed a negative association between parental monitoring with sensation seeking and a positive linkage of the independent variable with life satisfaction. In line with existing literature, the present study underlined the beneficial influence of involved parents in youth healthy development (Hoskins, 2014). In detail,

our results suggested that, on one hand, high levels of parental monitoring may safeguard youth from sensation seeking that may lead them to explore new and unpredictable situations (e.g. alcohol use; Kaynak et al., 2013; Yu et al., 2016). On the other, findings confirmed that communicative, caring and supportive family environments may enhance youth's satisfaction with life (Proctor et al., 2009).

H3 was partially supported given that, although direct effects from parental monitoring to binge drinking were not significant in the model, the total effects were statistically significant. Moreover, in the correlational analyses, parental monitoring was negatively related to both binge drinking and binge eating. These results seem to show that there is a relationship between parental monitoring and binge behaviors, but also that this relationship is explained by the mediating effect of sensation seeking and life satisfaction. This is in line with research reporting that parental monitoring may play an important role in preventing eating and drinking disorders among teens (Barnes et al., 2000; Martinson et al., 2016; Kim & Neff 2010); also, these findings stress the need to investigate the psychological mechanisms underlying these relationships, confirming that the onset of risky behaviors may be the result of contextual and individual factors (Bronfenbrenner, 2005). Of note is that although parental monitoring was related to both binge behaviors in the analyses of correlations, in the path model the direct association became insignificant; this is probably due to the mediating effect of sensation seeking and life satisfaction on the parental monitoring and binge behaviors relationships.

H4 was fully supported since direct and positive paths were observed from sensation seeking to binge eating and drinking. The study, thus, confirmed sensation seeking as a determinant for youth's compulsive behaviors. Particularly, it shed light on such a personality trait and its influences on youth health development, by evidencing that high levels of sensations seeking drive teens to binge eating and drinking in order to fulfill their need for novelty, risk, and excitement (Rossier, Bolognini, Plancherel, & Halfon, 2000; Yu et al., 2016).

With regard to H5, our predictions were confirmed only for what concerns the relationship between life satisfaction and binge eating. Specifically, in accordance with other studies (e.g., Esch & Zullig, 2008), we found that a positive evaluation of one's existence was negatively linked to binge eating, whereas no association was reported between satisfaction with life and binge drinking. The latter finding is surprising since several lines of research pointed out that youth satisfied with their lives are likely to avoid unhealthy behaviors (Grant et al., 2009; Lew et al., 2018; Proctor et al., 2009; Zullig et al., 2001). Nonetheless, it is worth to note that literature showed mixed and complex results on the relationships between satisfaction with life and alcohol use (Murphy, McDevitt-Murphy, & Barnett, 2005; Newcomb, Bentler & Collins, 1986). For instance, Clark and Kirisci (1996) found no association between adolescent's life satisfaction and alcohol use disorders, whereas, paradoxically, others demonstrated that alcohol consumption may be associated with enhanced life satisfaction (Mason & Spoth, 2011; Murphy et al., 2005). In the current research the lack of association between the two variables may be due to the way satisfaction with life was assessed, that is the general inquiry on life satisfaction adopted in the study might have not investigated specific areas of one's life (e.g., satisfaction with peer relationships, satisfaction with future opportunity, satisfaction with perceived environment, and self-image) that, when dissatisfied, might lead youth to drink alcohol in order to alleviate distress.

In light of these findings, the supposed mediation model (H6) was partially confirmed. Indeed, counter to the hypothesis, life satisfaction negatively mediated only the relationship between parental monitoring and binge eating, whereas, as expected, sensation seeking negatively mediated parental monitoring association with both binge eating and drinking. In other words, parental monitoring may be considered as a contextual factor that mitigates personal disposition to problematic behaviors (Mann, Kretsch, Tackett, Harden, & Tucker-Drob, 2015) which, in turn, decreases the likelihood for youth to engage in binge eating and drinking in order to avoid feeling of boredom or to satisfy their need of experiencing extreme sensations (Kaynak et al., 2013; Rossier et al., 2000). Moreover, according to the present findings, a parenting style based on behavioral

control, surveillance, and responsiveness to youth's needs seemed to enhance youth's life satisfaction which, in turn, discouraged binge eating but not binge drinking. The absence of mediation could be attributed to the way youth experience and perceive alcohol, that is they may use it as a means to feel cool and satisfied and/or to gain more social interactions with peers (Mason & Spoth, 2011; Fischer, Najman, Plotnikova, & Clavarino, 2015; Laghi, Baiocco, Lonigro, Capacchione, & Baumgartner, 2012; Yu et al., 2016). Also, it could be argued that other mediating variables may intervene on the relationship between monitoring and drinking behaviors. For instance, peer influence which seems to be one of the most relevant determinant driving youth to misuse alcohol (Laghi et al., 2014). In this case, parents that actively monitor their children, transmit positive values and behavioral standards to them, are likely to prevent their children from drinking disorders by leading their offspring away from friends who drink (Kim & Neff, 2010). However, regardless of the lack of the mediation role of life satisfaction, positive parent-child relationships maintain their protective function against compulsive drinking among youth (Moore, Rothwell, & Segrott, 2010).

Finally, with regard to gender and age, in line with previous studies (Gan et al., 2018; Seedall & Anthony, 2015), females showed higher levels of parental monitoring and binge eating than males, whereas males showed higher levels of life satisfaction and binge drinking than females. Differently from previous studies (Cross et al., 2013), we found no direct effects from gender to sensation seeking, meaning that among participants there are no peculiar gender-related differences with regard to this variable. Findings highlighted also that parental monitoring tend to decrease with age while binge drinking tend to increase with age. Probably, when youth become older, the behavioral control of the parents tends to ease as they acquire more freedom that may result in a more frequent engagement in drinking behaviors (Feij & Taris, 2010; Goldbeck et al., 2007). In addition, age was negatively associated with satisfaction with life and positively related to sensation seeking, whereas no significant effects of the age were found with regard to binge eating.

Although interesting, the study should be interpreted in light of several limitations. First, its cross-sectional nature hindered the ability to firmly establish the direction of associations among the variables, whereas longitudinal designs would be ideal to substantiate the hypotheses since they would help ascertain temporal ordering and causality. Second, the study used a single-item measure of binge drinking. Although this method has been effectively used in previous works (e.g., Tucker, Orlando, & Ellickson, 2003; Wilks et al., 2018), future research should try to adopt different measures of binge drinking to extend this result. Third, all the measures of this study are self-reported, thus, they have the potential to lead to social desirability bias. Consequently, future studies might utilize more implicit or behavioral measures.

Implications for practice

Despite the data of the current study are correlational, they may indicate practical implications for parents and practitioners working with youth. Particularly, the results seem to suggest that interventions should take into consideration life satisfaction, sensations seeking, and the ways in which parents monitor the behavior of their children in order to try to prevent the onset of binge eating and drinking (Matthews et al., 2012). Accordingly, parents should be more aware of their potential influence in preventing binge behaviors through monitoring strategies. For instance, they should be equipped with skills allowing them to monitor their children without being intrusive (Ingoglia, Inguglia, Liga, & Lo Coco, 2017; Inguglia, Liga, Lo Coco, Musso, & Ingoglia, 2018) but, at the same time, letting them “keep an eye” on their offspring’s activities, relationships and whereabouts. This probably would help them to identify the risks for bingeing (e.g., depressed mood, high levels of sensation seeking or deviant peers) and to promptly and appropriately intervene (Kaynak et al., 2013).

Programs should target children as well. For example, interventions should support youth in promoting their satisfaction with life and in reducing their tendency to seek sensations and risky situations. In other words, interventions should help youth change their perception of compulsive use of food and alcohol as means to regulate mood and gain temporary satisfaction, by involving

them in a range of healthy activities to relax, alleviate distress, and feel fulfilled (Fischer et al., 2015; Rossier et al., 2000). This could be a possible way to prevent the onset of disordered eating and drinking attitudes and behaviors among youth.

Conclusion

The study analyzed, within a comprehensive model, variables that have been mostly investigated separately. Particularly, it provided evidence that not only was sensation seeking an antecedent of either binge eating and drinking, but also that it mediated parental monitoring association with such types of disordered behaviors. Also, it suggested that not only was life satisfaction a predictor of binge eating, but also that psychological well-being seems to mediate the relationships between parental monitoring and binge eating. In other words, when youth feel that they are monitored by parents not only are they likely to be more satisfied with their lives, but they do not also engage in risky behaviors to mitigate their willingness to experience extreme sensations. Hence, in line with an ecological perspective (Bronfenbrenner, 2005), this study pinpointed that both social (family environment) and personal (personality trait and well-being) factors play a fundamental, joint role in the processes that lead youth to avoid dangerous behaviors (Mann et al., 2015), such as an unhealthy use of alcohol and food. Relatedly, this study warned that both research and programs should pay more attention to the possible interrelations between intrapersonal and contextual factors that may cause or discourage binge behaviors among youth.

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